

## REMARKS

Claims 74-81 and 83-89 are pending in the application as of entry of this amendment. Claims 2-8, 64-65, 67-68 and 71-73 were withdrawn from consideration by the Examiner in the Office action dated December 13, 2007. Claim 82 is cancelled. Claims 75-81 are amended to replace "A plasma..." with "The plasma..." in the preamble of each claim consistent with their status as dependent claims. Various unintentional antecedent basis errors are also corrected by way of amendment to the claims. Claims 88 and 89 are new, and are supported by the specification at least in paragraphs [0206] - [0211], [0226] - [0240], and [0287] - [0290]. No new matter has been added by way of amendment.

### Rejections of the Claims Under 35 U.S.C. § 102/103

The Examiner rejected claims 74-79 and 81 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Murata et al. (U.S. 5,423,915) in view of Patrick (U.S. 5,474,648). The Examiner also rejected claim 80 under 35 U.S.C. 103(a) as being unpatentable over Murata et al. (U.S. 5,423,915) and Patrick (U.S. 5,474,648) in view of Stramke (U.S. 4,645,981).

Independent claim 74 recites a plasma processing apparatus comprising a plasma processing chamber having a plasma excitation electrode for exciting a plasma. The claim further recites a set of electrical radio frequency factors of the plasma processing chamber configured such that three times a first series resonant frequency  $f_0$  of the plasma processing chamber is larger than a power frequency  $f_e$  of the radio frequency voltage.

The Examiner continues to assert that these limitations "appear to be a claim recitation of intended use in the apparatus claims." This characterization is both incorrect and unsupported. The Examiner is respectfully requested to point out specifically where in the claims the alleged "intended use" language appears. To what intended use is he referring? Applicants maintain that the claims include structural features that – as the Examiner has acknowledged – are not shown in the cited art.

As stated in the specification in paragraph [0054]: "The radiofrequency electrical characteristics of each of the chambers of a plasma processing apparatus or a plasma

processing system are defined by its shape, that is, by the mechanical dimensions." Paragraph [0464] further states that "the first series resonant frequency is a radiofrequency electrical characteristic which is determined by many structural factors and which is different in each apparatus." The specification provides in paragraphs [0227] - [0240] an exemplary listing of electrical radio frequency factors and structural elements that may be taken into consideration in defining the first series resonant frequency. By defining the first series resonant frequency as specified by claim 74, the structure of the plasma processing chamber is correspondingly limited.

The inventors discovered that "it becomes possible to provide each of the apparatuses with predetermined overall radiofrequency electrical characteristics and to achieve stable plasma generation" (paragraph [0076]) by setting the first series resonant frequency to the claimed range. None of the cited references have recognized this advantage of the claimed chamber configuration, and none of the references, either alone or in combination, teach or suggest each and every limitation of claim 74. Indeed, the Examiner makes no case that the cited references disclose "configuring a set of electrical radio frequency factors of the plasma processing chamber such that three times a first series resonant frequency  $f_0$  of the plasma processing chamber is larger than a power frequency  $f_e$  supplied by the radio frequency generator," and he explicitly states on pages 4-6 of the present Office Action that Murata does not teach each and every limitation of claims 75-79 and 81. Instead, the Examiner relies on the above-mentioned intended use argument in his rejection of claims 74-81 without providing any support for his position.

Applicants respectfully submit that the claims include structural limitations that should be accorded patentable weight and which are not shown in the cited art. Hence, at least for these reasons, the Examiner is respectfully requested to withdraw the rejection of independent claim 74 and dependent claims 75-79, and 81 under 35 U.S.C. 102/103 and the rejection of claim 80 under 35 U.S.C. 103.

The Examiner rejected claims 82-84 under 35 U.S.C. 103(a) as being unpatentable over Murata et al. (U.S. 5,423,915) in view of Patrick (U.S. 5,474,648) and Hoke et al. (U.S. 5,077,875). In view of the cancellation of claim 82, the amendment of

claims 83 and 84 to depend from claim 74, and the arguments above regarding the patentability of claim 74, Applicants respectfully request that this rejection be withdrawn.

The Examiner rejected claims 85-87 under 35 U.S.C. 103(a) as being unpatentable over Murata et al. (U.S. 5,423,915). Once again he relies on an unsupported intended use argument to dismiss features of the claims that should be given patentable weight, while acknowledging that these features are not shown in the cited art. On pages 12-14 of the present Office Action, he concedes that Murata does not teach at least one of a shape of a feed plate, an overlapping area of the plasma excitation electrode and a chamber wall, insulation material between the plasma excitation electrode and the chamber wall, and a capacitance between a susceptor electrode and the chamber wall is adjusted such that three times the first series resonant frequency  $f_0$  is larger than a power frequency  $f_e$  supplied from the radio frequency generator, as recited by claim 85. The Examiner further concedes that Murata does not teach each and every limitation of claims 86 and 87. A *prima facie* case of obviousness has not been established, and therefore Applicants respectfully request that the rejection of claims 85-87 under 35 U.S.C. 103(a) over Murata et al. be withdrawn.

#### **Patentability of New Claims 88 and 89**

New claims 88 and 89 depend from independent claim 74, which Applicants assert is patentable over the cited art as discussed above. At least for this reason, the new claims depending from claim 74 are also believed to be patentable.

**SUMMARY**

Applicants respectfully submit that claims 74-81 and 83-89 are in condition for allowance. The Examiner is respectfully requested to contact the undersigned in the event that a telephone interview would expedite allowance of the claims.

Respectfully submitted,

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